



منظمة الأعدنية  
والزراعة  
للأمم المتحدة

联合国  
粮食及  
农业组织

Food  
and  
Agriculture  
Organization  
of  
the  
United  
Nations

Organisation  
des  
Nations  
Unies  
pour  
l'alimentation  
et  
l'agriculture

Organización  
de las  
Naciones  
Unidas  
para la  
Agricultura  
y la  
Alimentación

Agenda item 5

STAT-EMPOWER-9  
September 2009

Expert Consultation on Statistics in Support of Policies to Empower Small Farmers

Bangkok, Thailand, 8 -11 September 2009

AGRICULTURAL STATISTICS FOR GOVERNMENT POLICY AND PROGRAMMES

AUSTRALIAN CASE STUDIES

**Food and Agricultural Organisation (FAO)**  
**Statistics in Support of Policies to Empower Small Farmers**  
**Bangkok 8-11 September 2009**

**Agricultural Statistics for Government Policy and Programs**

**Australian Case Studies**

Denis Farrell  
First Assistant Statistician,  
Population, Labour, Industry and Environment Statistics Group  
Australian Bureau of Statistics

Adrian Bugg  
Director,  
Environment and Agriculture Business Statistics Centre  
Australian Bureau of Statistics

## **Abstract**

This paper cites 3 case studies to describe the Australian Bureau of Statistics' experience in developing new statistical collections to provide timely information on three contemporary agricultural policy issues.

A new wheat collection, including use of administrative data on exports, was developed to provide information on the Australian wheat industry to meet information requirements underpinning new wheat export marketing legislation.

Existing ABS agricultural surveys were adapted to measure the impact of reduced water availability for irrigation and the consequential effects on agricultural production as a result of long term drought. These statistics, combined with data on responses to perceived climate change and adverse seasonal conditions, are informing the debate about water policy and adaptation to climate change.

The ABS has undertaken a survey of agricultural businesses to provide benchmark data on sustainable land management practices for the Australian Government's 'Caring for Our Country' program and to assist in determining future investment priorities. This program is an Australian government initiative that seeks to achieve an environment that is healthy, better protected, well managed and resilient, and provides essential ecosystem services in a changing climate.

These case studies demonstrate the importance of a flexible agricultural statistics program in meeting the contemporary information needs of policy makers in Australia. The paper also draws out lessons learned in areas that include the timeliness and relevance of information to policy making and monitoring, the importance of confidentiality for market sensitive information, the need to balance ongoing needs for information against the priorities for information on specific contemporary issues, the value of administrative data as a source, etc.

## **BACKGROUND**

### **Australian Government Agricultural Policy**

The Australian Government aims to ensure that Australia's agricultural, fisheries, food and forestry industries remain competitive, profitable and sustainable through policies and programs developed and implemented by the Department of Agriculture, Fisheries and Forestry (DAFF) ([www.daff.gov.au/about](http://www.daff.gov.au/about)) to:

- encourage and support sustainable natural resource use and management;
- protect the health and safety of plant and animal industries;
- enable industries to adapt to compete in a fast-changing international and economic environment;
- help improve market access and market performance for the agricultural and food sector;
- encourage and assist industries to adopt new technology and practices; and
- assist primary producers and the food industry to develop business and marketing skills, and to be financially self-reliant.

2 Other Australian Government departments, such as the Department of Environment, Heritage, Water and the Arts (<http://environment.gov.au/about/index.html>), deal with related issues such as:

- environment protection and conservation of biodiversity;
- water policy and resources; and
- land contamination programs.

3 Australia's State and Territory Governments have an important role in setting and administering agricultural policy and its implementation. Under the Australian Constitution, State and Territory governments are responsible for matters affecting their rural industries, such as the regulation of agricultural production and marketing, land tenure, land use and water supply (<http://www.mincos.gov.au/background>). For example, the Victorian State Department of Primary Industries aims to enable Victoria's agriculture and food sectors to maintain and enhance a reputation for world-class food by sustainably increasing wealth, employment and investment in regional communities. (<http://new.dpi.vic.gov.au/agriculture>)

### **ABS' Role in Agricultural Statistics**

4 The Australian Bureau of Statistics (ABS), Australia's central statistical authority, is responsible for providing statistical services to Australian governments, and the community. Due to its unique place in servicing national and state statistical needs, the ABS has a key role in providing statistics for government policy and programs at all levels. This is reflected in the mission of the ABS, which is 'to assist and encourage informed decision making, research and discussion within governments and the

community, by leading a high quality, objective and responsive national statistical service' ([www.abs.gov.au](http://www.abs.gov.au)).

5 The ABS provides a wide range of statistics relevant to agricultural industries. The annual agricultural surveys and five-yearly agricultural censuses and supplementary surveys collect data on area and production of crops, livestock numbers, livestock products, land and water management. The ABS also collects information relating to livestock slaughtering, wool receivals, wheat grain usage and statistics on agriculture related natural resource management practices.

6 These statistics serve a wide variety of organisations in both government and industry. The information is used by Australian and State governments for planning, budgeting and policy making. Farming organisations use the data for research to support logistics planning, export marketing programs, submissions to government etc. Agriculture service companies use ABS agricultural statistics data in their planning to better meet the needs of their clients in the farming community.

7 Agricultural industry contributes approximately 3% of Gross Domestic Product (GDP) and about 3.5% of employment in Australia. While its relative contribution to GDP and employment has declined as other industries have grown over the past 140 years – the period for which statistics are available – the Australian agricultural industry has continued to improve productivity and remains an important sector of the Australian economy. Agriculture utilises a large proportion of natural resources, accounting for 65% of total water use and almost 60% of Australia's land area. In regional and rural areas, it is a significant employer and the life-blood of many rural towns. Australian agricultural activity contributes to the health and wellbeing of many people, both in Australia and globally, through the quality and availability of the food it produces and the inputs it consumes.

8 In recent years, there has been an increasing demand for data on issues relating to environmental, economic and community sustainability without compromising the quality and availability of data on agricultural production and yields. Previously, ABS agricultural statistics focused largely on production data for commodities, specifically the area planted to crops and the quantity harvested and numbers of livestock held and sold. In addition to data on production and yields, used for forecasting and National Accounts, the agricultural statistics program provides information for contemporary policy imperatives including marketing and international trade, environmental management and sustainability, water use and the perceived effects of climate change and adverse seasonal conditions on agricultural operations.

9 The current ABS Agriculture Statistics Strategy aims to ensure that future agricultural statistical collections provide outputs that will inform the policy and research imperatives facing government and non-government users ([www.abs.gov.au/ausstats/abs@.nsf/mf/7105.0](http://www.abs.gov.au/ausstats/abs@.nsf/mf/7105.0)).

10 The strategy aims to meet priority information requirements for Australian agricultural policy development and to implement and monitor government programs

such as 'Caring for Our Country' (<http://www.nrm.gov.au/>). The ABS Agricultural Statistics Strategy was updated in early 2009 based on recent experience in responding to the need for statistical information to support this program and other policy imperatives. The ABS has undertaken an extensive round of consultation with Australian government and industry users around this strategy.

## **AGRICULTURAL STATISTICS FOR POLICY AND PROGRAMS**

### **Case Study 1 - Changed Wheat Export Marketing Arrangements**

11 Reforms in both Australian agricultural policy and the broader economic agenda over the last couple of decades have transformed agricultural marketing to the point where the monopoly over wheat exports was the only remaining such arrangement effective at the national level. In 2008 a review of the 'single desk policy' for the export of Australian wheat recommended deregulation. To assist the smooth transition into a deregulated environment the Wheat Industry Expert Group recommended to the Government that the ABS be contracted to collect statistics relating to wheat supplies (both committed and uncommitted) and use. The industries' belief in the ABS' ability to collect and disseminate timely, relevant data provided market confidence as Australia moved to a deregulated wheat export industry and the Wheat Export Marketing Bill was passed on 1 July 2008.

12 To meet this need for information on the Australia wheat industry, the ABS proposed a combination of three new collections, an expanded Agricultural Survey program, and the use of administrative data on export trade. Following consultation with industry, the ABS entered into an agreement with the Department of Agriculture, Fisheries and Forestry to collect information on wheat stocks, wheat use and forward commitments, for three years from October 2008. The surveys cover manufacturers processing wheat grain, bulk grain handlers, the major agricultural businesses using wheat grain (specifically beef feedlot operators, piggeries and major poultry producers), and wheat exporters. Estimates from the surveys are combined with monthly export trade data to provide monthly outputs on the volume of wheat used, and wheat committed for sale, by state.

13 This was a new undertaking and relatively complex in that most of this information had not been collected previously and it involved the integration of outputs from various sources, including administrative data. The collection was undertaken to meet a ministerial commitment and it was imperative that the timeframes set by the Wheat Industry Expert Group for release of information in early 2009 were met. To achieve this, the first surveys needed to be in the field in October – only three months after passing of the legislation.

14 Data on the existing stocks held by bulk grain handlers (opening stocks) were collected for the end of September 2008 – which corresponds with the start of the harvest season in Australia (depending on the location the harvest occurs during the months of October, November and December). Data on wheat grain stocks, use and commitments by manufacturing and agricultural businesses have been collected on a monthly basis

since September 2008. The wheat surveys were not currently designed to collect all on-farm stocks of wheat grain, but coverage of agricultural businesses will be expanded in 2009 to provide this information. The first outputs from the wheat collection were released on the ABS website in February 2009.

15 The data from the wheat collection are used by the Australian Bureau of Agricultural and Resource Economics (ABARE) to produce a monthly report to inform the marketplace regarding the volume of committed and uncommitted wheat stocks within the Australian economy. There has also been close interest from the industry, market analysts and the media in the availability of this information. Key findings from the first report were that at the end of September 2008 - just before the start of the new harvest season - there was an estimated 2 million tonnes of wheat grain in storage. At the end of December 2008, 3.3 million tonnes of wheat grain were committed for use domestically, or for export (see Appendix 1 for details of the data released).

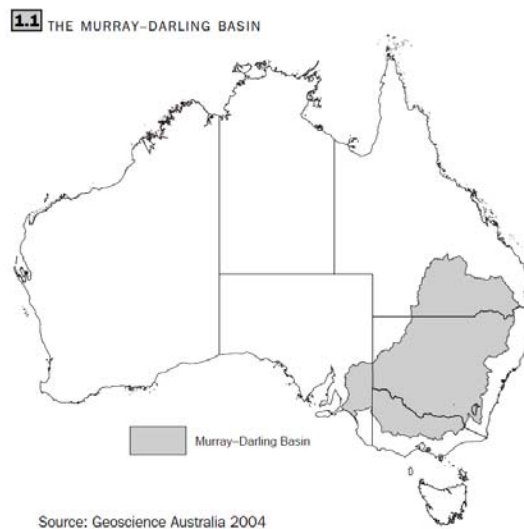
16 There has been an ongoing process of consultation around the outputs that has resulted in several refinements, including collecting and reporting stocks of wheat grain held by bulk handlers by state on a monthly basis and providing a breakdown of wheat grain quality. Confirmation of consent to release the data was needed to permit these enhancements and industry cooperated in providing this consent. From June this year, data on stocks of grain are being released earlier than data from other collections because of the industry's demand for more timely information. In addition the annual agricultural survey program has been enhanced to collect information on wheat storage, stocks and use by agricultural businesses, including the dairy industry, and a new sub-annual collection will be introduced to provide more regular data on on-farm stocks and use.

17 Consultation with industry has generally confirmed that implementation of the wheat collections was a major and positive development. The monthly reports produced by the ABS and ABARE, combined with other available information, allow all participants to operate effectively in the market. They also allow monitoring as Australia moves into a deregulated wheat export industry.

18 Currently, data from the wheat surveys are published about 5 weeks after the end of each month. Timeliness of the data is a key issue expressed by the industry. The more timely the data, the more valuable and relevant that it is to decision making in the deregulated market for both suppliers and purchasers. Accordingly, the ABS is endeavouring to improve release times wherever possible. Computer assisted telephone based follow-up for non-response has been introduced and a move to phone and/or internet based data collection methods are also being considered to replace the current mail-out mail-back form arrangements. The current outputs balance the demand for detailed information on the Australian wheat industry with other considerations including provider reporting burden and the legislated confidentiality obligations of the ABS.

## Case Study 2 - Informing Policy on Water Allocation and Climate Change

19 The ABS has collected information on water use by agricultural businesses for the past six years. Data on water use, including irrigation, and water sources are generally collected annually. Other data on watering methods, purchases and sales of water, changes to practices, irrigation expenditure and equipment values are collected less frequently. The ABS has also developed thematic publications such as a statistical profile of the Murray-Darling Basin, a highly intensive agricultural region often referred to as the nation's 'food bowl' due to the amount of agricultural produce grown there (see map below).



20 More broadly, agriculture is included as a key industry in the ABS Water Account compiled every four years, with 2008-09 being the next. The ABS compiles its water account according to the System of Integrated Environmental-Economic Accounts which brings together environmental and economic information into a common framework to measure the contribution of the environment to the economy, the impact of the economy on the environment, and the efficiency of the use of environmental resources within the economy. In 2004-05, the Agriculture industry consumed the largest volume of water, representing 65% of water consumption.

21 The recent long-term drought in Australia has highlighted the importance of water management and has led to the introduction of new policies and programs, including government funded purchases of water entitlements. 'Water for the Future' is the Australian Government's \$12.9 billion strategy that aims to secure the long term water supply for all Australians over the next 10 years. The strategy is built on four key priorities

- taking action on climate change,
- using water wisely,
- securing water supplies, and



- supporting healthy rivers.

1. Accurately monitoring, assessing and forecasting the availability, condition and use of our water resources is a key part of preparing for the impacts of climate change. The Bureau of Meteorology (BOM) has been given an expanded role in water information through the introduction of the Water Act 2007 and Water Regulations 2008 (<http://www.bom.gov.au/water/>). This program will transform Australia's water resources information. The ABS is collaborating with the BOM to minimise duplication in collection of water data, ensure greater understanding of water information products and promote increased availability of water data. Administrative data will soon be available through the BOM under the new water regulations and the ABS will use this data for production of the next environmental-economic water account.

23. Another component of the 'Water for the Future' strategy is a 'Small Block Irrigators Exit Package' that provides a grant of up to \$150,000 for eligible farms to cease irrigation where the size of the property does not exceed 40 hectares. Responding to the need for information about this, standard agricultural statistical outputs were refined to include information on irrigation activities by the size of the agricultural operation. The Australian Government is also investing in on-farm irrigation efficiency where a long-term economic and environmental benefit can be sustained for at least 20 years. The ABS has already been collecting data on irrigation methods and expenditure and has recently produced experimental estimates of the Gross Value of Irrigated Agricultural Production (GVIAP) that will help inform this policy need by linking the value of agricultural production to irrigation activity.

24. ABS statistics for 2007-08 show the effect of reduced water availability on agricultural production - Australia's climate is extremely variable and lack of water during periods of drought has a major impact on production. In 2007-08, irrigation water use by Australian farms was down by almost one fifth to a new low of 6,285 gegalitres (following a decline of nearly one third in the preceding year). Australian crop production increased in 2007-08 in comparison to the previous year, but generally remained at among the lowest levels in five years. Lack of water was a major contributor to this, with falls in cotton production and a near complete suspension of rice production. In spite of this, wheat production was up 25% to 13.6 million tonnes. Drought conditions and industry adjustments also lead to a decline in livestock numbers, with the sheep and lamb flock at yet another historic low.

25. The link between water availability and production points to the need for adaption by agricultural businesses should long term climate change occur in rural regions across Australia. A recent report by the Standing Committee on Rural and Regional Affairs and Transport (Dec 2008) on climate change and the Australian agricultural sector noted that Australian agriculture is vulnerable to climate change and strategies are needed to adapt to changing climate conditions. Recognising the importance of information to inform the national and international policy debate on climate change, the ABS collected data on the farm operators' perceptions of changes to climate including impacts and management responses through the 2006-07 Natural Resource Management Survey. In 2007-08, the

Department of Agriculture, Fisheries and Forestry also funded the ABS to collect information about the impacts of adverse seasonal conditions on agricultural businesses, including drought, floods, hail, storms and responses to these conditions. This information was released along with commodity production and water use data in annual ABS agricultural publications.

### **Case Study 3 - Providing a Baseline for Program Evaluation 'Caring for Our Country'**

26 The ABS was funded through the Departments of Agriculture, Fisheries, and Forestry and the Environment, Water, Heritage and the Arts to conduct a survey of resource management practices on Australian farms for the 2007-08 year. This survey was to provide a benchmark for determining investment priorities and for evaluation of future Natural Resource Management (NRM) programs. These programs are known as 'Caring for Our Country' (<http://www.nrm.gov.au/funding/future.html>), and focus on achieving strategic results in six priority areas: a national reserve system; biodiversity and natural icons; coastal and critical aquatic habitats; sustainable farm practices; natural resource management in remote and northern Australia; and community skills, knowledge and engagement. Data were collected through the 2007-08 ABS Agricultural Resource Management Survey (ARMS) that was a mail-out, mail back survey to a sample of approximately 33,000 agricultural businesses selected from an in-scope population of approximately 150,000 agricultural businesses.

27 An important part of the Caring for Our Country initiative is the commitment to establishing simple, efficient, reliable and cost-effective mechanisms for measuring and reporting on outcomes from Caring for Our Country investment. The strategy aims to (<http://www.nrm.gov.au/me/index.html>):

- a enable the Caring for Our Country initiative 2008 -2013 to achieve its stated five year outcomes by monitoring implementation against key monitoring, evaluation and reporting indicators;
- b ensure that the implementation of the initiative meets the Australian Government requirements for accountable and transparent expenditure of public funds through reporting by outcomes; and
- c articulate clear requirements for both proponents and the Australian Government for the implementation of a monitoring, evaluation and reporting information framework for Caring for Our Country.

28 The ARMS survey provided data specifically for two of the outcomes - sustainable farm practices and natural resource management in remote and northern Australia. Examples of the types of outcomes being sought are:

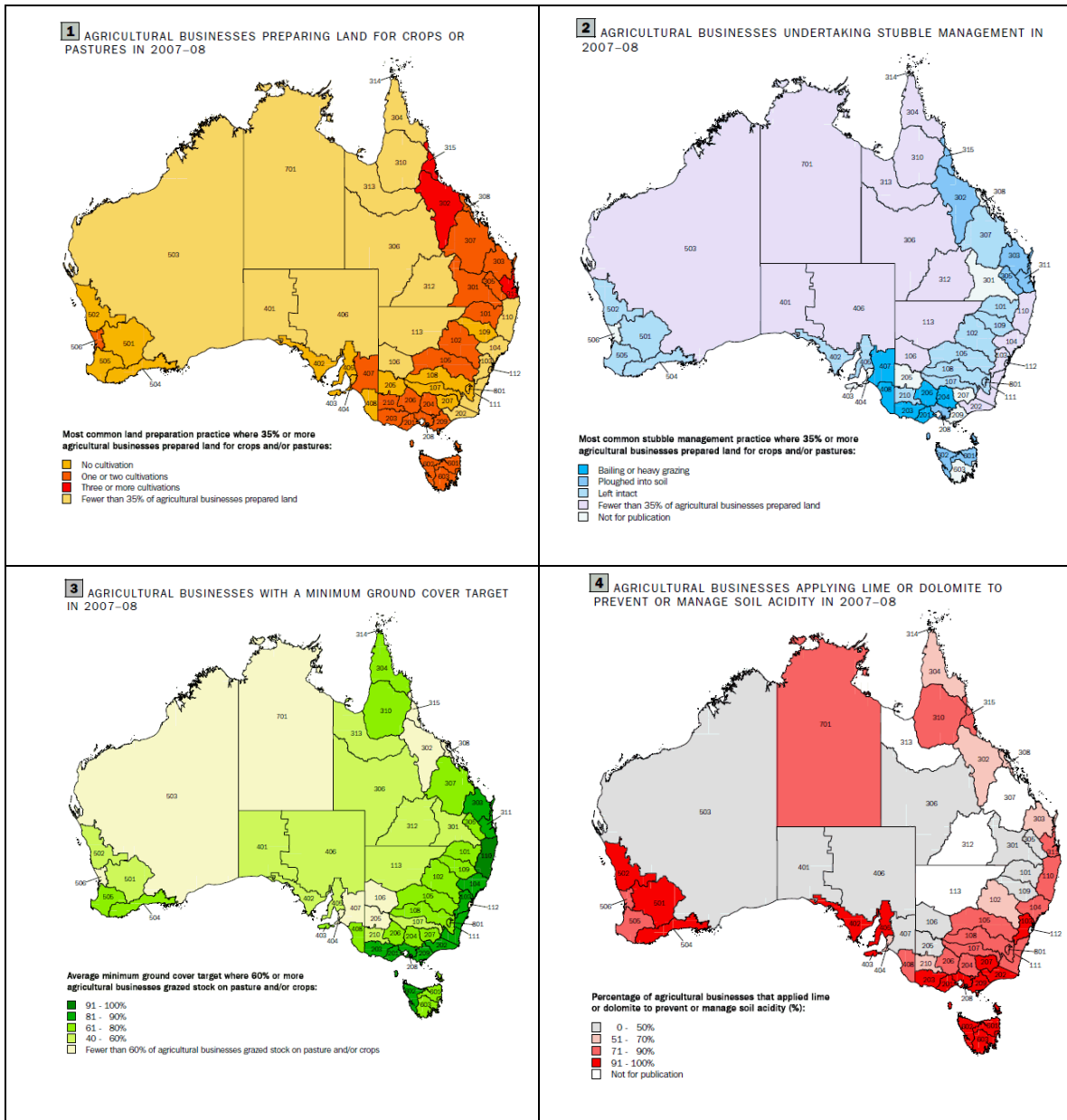
- a sustainable farm practices - assist at least 30 percent of farmers to increase their uptake of sustainable farm and land management practices that deliver improved ecosystem services; and
- b northern and remote Australia - assist at least 30 percent of land managers in northern and remote Australia to increase their uptake of sustainable grazing and land management practices.

29 Targets for these outcomes are set out in the Caring for Our Country Business Plan 2009-10 and include improving land management practices to reduce the risk of soil acidification and soil loss (through wind and water erosion), improve the carbon content of soils, and adoption of other improved soil management methods. Improved practices include setting targets and monitoring ground cover, adoption of minimum (or zero-till) cultivation techniques, crop residue and stubble retention, undertaking soil testing and application of soil conditioners.

30 Some of the key findings in relation to land management practices were:

- a 75,000 farmers prepared land for crops or pastures, with 40,000 (53%) using zero-tilling methods. A total of 17.5 million hectares (65% of the total area prepared) was prepared using zero-till methods.
- b The majority of graziers (69%) reported monitoring ground cover levels in their paddocks, with over half of these (57%), having set a minimum target. Average ground cover targets above 80% were reported in several more productive regions of south-eastern Australia.
- c Soil acidity required management by 17% of farmers, and most of these used lime or dolomite to treat their land. Less than 6% planted acid tolerant crops or pastures as a means of managing soil acidity.

31 The accompanying maps show percentage of agricultural businesses reporting adoption of these management practices for NRM regions across Australia.



32 The information from this survey is being used by the Australian Government to review progress during the first phase of the program and to refine targets and priorities for future investments. It is envisaged that this will be reviewed biennially and this requirement is being incorporated into the ABS agricultural statistics program strategy. The data are also being used by state government departments, for example to assess key performance indicators, and for research purposes. As part of the Caring for Our Country program, the ABS is also being funded by the Australian government to undertake a survey of farm management practices in the catchment area for the World Heritage listed Great Barrier Reef during 2008-09 to provide information on sediment and nutrient discharge and other activities that may impact on the reef.

## SUMMARY AND CONCLUSIONS

33 The three case studies described in this paper demonstrate the demand for new agricultural statistics to respond to contemporary Australian government policy issues. In meeting this demand, the ABS ensured that this was achieved without unduly impacting on existing statistical outputs that are also important, as well as minimising provider load and ensuring that confidentiality obligations were met.

34 To provide information on the Australian wheat industry and support new wheat export marketing arrangements required balancing these, at times conflicting, considerations. An important lesson from this was that timeliness of the data is a key factor in determining its acceptance and use in a policy context. Cooperation of providers and their perception of ABS' commitment to ensure protection of the confidentiality of their information were also important.

35 The increased demand to deliver wider ranging and more detailed agricultural statistics for a range of issues including sustainability, water and climate will inevitably mean changes in how the ABS collects and produces these data. The ABS recognised the increasing demand for information on water and has, for the last six years, provided information on this as part of its annual agricultural survey program. However, this creates a tension between traditional agricultural statistics and how new demands are met with the same, or even fewer resources. Responding to this challenge will increasingly require more efficient statistical processes, integration and use of statistics from a range of sources, including administrative data, and external funding where the statistics are in the broader national interest.

36 The case studies described in this paper demonstrate some of the ways in which this is being achieved. Some key points include:

- a existing administrative data on exports was used in conjunction with survey data to provide market information for the wheat industry;
- b user-funding was obtained from key policy agencies to undertake collections to provide data to monitor new government land management programs;
- c improved processing efficiency and other improvements (eg use of significance editing practices) has facilitated expansion of the agricultural survey program to provide information on water use and climate change; and
- d direct collection of data has been scaled back in some instances where this data is available from other sources, for example hydrological data from the Bureau of Meteorology.

37 Looking to the future, data-matching of taxation data from the Australian Taxation Office with ABS survey data is being investigated and has the potential to augment existing financial information about agricultural businesses.

38 Increasingly, the ABS is getting involved early in the policy development process, as demonstrated by the close link between data collected in the Agriculture and Resource Management Survey and the 'Caring for Our Country' program targets. With increased emphasis on monitoring and reporting, there is an associated demand for small area and detailed statistical outputs and the ABS is continuing to develop its response to these demands as they evolve. The ABS obtained significant user funding to geocode agricultural businesses in the 2005-06 Agricultural Census to enable production of outputs for a wide range of flexible geographical regions, such as water management and catchment regions. To capitalise on the success of this project, the ABS will continue to improve on how it delivers statistics for small and flexible geographic regions from the five-yearly Agricultural Census.

39 The ABS must continue to ensure the agricultural statistics program produces timely and relevant statistics that meet the needs of key users, but the complexity and size of this undertaking will continue to grow in parallel with increased client demand. This challenge is not unique to the agricultural statistics program and a key strategy for the ABS is development of a national statistical system for official statistics in Australia. The ABS is taking a lead role in establishing the national statistical system that will improve and expand the information available for decision making, regardless of its source. This leadership role of the ABS and the success of the National Statistical System will be increasingly important in times of change and in responding to challenges such as the global financial crisis, global food availability, agricultural sustainability and climate change.

Australian Bureau of Statistics  
August 2009

Appendix 1.

Monthly data released by ABARE based on ABS data.

July 2009

Australian wheat - marketing year (Oct-Sept)

	Oct 08	Nov 08	Dec 08	Jan 09	Feb 09	Mar 09	Apr 09	May 09	Jun 09
	kt	kt	kt	kt	kt	kt	kt	kt	kt
Opening stocks a	1954			15002			12070	10648	9223
<i>Bulk grain handlers</i>	1532			14490			11467	10108	8728
<i>Milling</i>	1313			12310			8918	7799	6778
<i>Feed and other</i>	219			2180			2549	2309	1948
Wheat users	422	258	314	512	629	630	603	540	497
Current year's production b	22460	19907	19969		21397				
Supplies	24414								
Wheat available c									
- as at beginning of month		20900	20042	18468	18214	16521	14131	12125	10386
Wheat grain used	961	920	1575	1682	1692	2390	2065	1740	
<i>Export</i>	521	497	1160	1261	1309	1996	1676	1346	
<i>Domestic</i>	440	423	415	421	384	395	389	394	
Wheat grain committed	1728	2834	3344	4644	4745	5107	4209	4381	
<i>Export</i>	704	1547	2010	3321	3674	4079	3321	3530	
<i>Domestic</i>	1024	1287	1334	1323	1071	1028	888	851	
Wheat grain balance d									
as at end of month	21725	17146	15124	12142	11776	9024	7857	6005	

Note: a) Opening stocks represents the stocks of wheat held at the end of the previous month.

b) ABARE's forecasts (or estimates) of wheat production in the respective month. Differing forecasts (estimates) for each month may occur throughout the marketing year as updated production figures become available. If no production figure is presented then there has been no change from the previous month.

c) Wheat available at the beginning of the month includes the estimate of wheat 'committed' in the previous month, wheat grain balance and any change to the production forecast.

d) Incorporates wheat grain held on farm (including the dairy industry) and wheat grain used by the dairy industry.

Sources: ABS, Wheat use and stocks, Australia, cat no. 7307.0, Canberra; ABARE crop report